

1     **IN THE CLAIMS**

2             This listing of claims will replace all prior versions and listings of claims in this  
3 application.

4  
5     **1. (Original)** An apparatus for a mass spectrometer, wherein said apparatus comprises: at least  
6 one pair of conducting rods; at least one capping electrode; means for applying voltages to said  
7 conducting rods; and means for applying voltages to said capping electrodes; wherein said  
8 conducting rods are aligned in parallel, wherein said at least one capping electrode bounds said  
9 conducting rods, and wherein said at least one capping electrode comprises at least one opening.

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11     **2. (Original)** An apparatus according to claim 1, wherein said at least one capping electrode  
12 comprises a plurality of openings.

13  
14     **3. (Original)** An apparatus according to claim 2, wherein at least one of said openings accepts  
15 sample ions.

16  
17     **4. (Original)** An apparatus according to claim 2, wherein at least one of said openings provides  
18 access through said ion guide for a laser beam to ionize a sample material.

19  
20     **5. (Original)** An apparatus according to claim 1, wherein said ion guide focuses sample ions.

21  
22     **6. (Original)** An apparatus according to claim 1, wherein said apparatus traps sample ions  
23 therein for ion selection.

1     **7. (Original)** An apparatus according to claim 1, wherein said apparatus traps sample ions  
2     therein for ion fragmentation.

3  
4     **8. (Original)** An apparatus according to claim 1, wherein each said conducting rod is  
5     positioned equidistant from a vertical axis.

6  
7     **9. (Original)** An apparatus according to claim 1, wherein said apparatus transfers sample ions  
8     from an ionization region to a mass analysis region.

9  
10    **10. (Currently Amended)** An apparatus according to claim 9, wherein said mass analysis  
11    region comprises a ~~time-of-flight~~ mass analyzer.

12  
13    **11. (Currently Amended)** An apparatus according to claim ~~[[9]]~~ 10, wherein said ~~mass~~  
14    ~~analysis region comprises a mass analyzer selected from the group consisting of a time-of-flight~~  
15    ~~mass analyzer, a quadrupole mass analyzer a quadrupole ion trap mass analyzer, a Fourier~~  
16    ~~transform ion cyclotron resonance mass analyzer nad an ion mobility mass analyzer.~~

17  
18    **12. – 14 (Cancelled)**

19  
20    **15. (Original)** An apparatus according to claim 9, wherein said ionization region comprises an  
21    ion production means.

22

1     **16. (Currently Amended)**   An apparatus according to claim 15, wherein said ion production  
2     means is selected from the group consisting of atmospheric pressure chemical ionization,  
3     electrospray ionization, matrix-assisted laser desorption/ionization, secondary ionization and fast  
4     atom bombardment.

5  
6     **17. -20. (Cancelled)**

7  
8     **21. (Original)** An apparatus for analyzing chemical species, wherein said apparatus comprises:  
9     at least one ion production region; an ion guide, said ion guide having a plurality of conducting  
10    electrodes and at least one capping electrode; means for applying voltages to said ion guide; a  
11    plurality of vacuum stages; and an analysis region; wherein said ion guide accepts sample ions  
12    from any said ion production region, and wherein said ion guide transfers said sample ions to  
13    said analysis region.

14  
15    **22. (Original)** An apparatus according to claim 21, wherein at least one of said capping  
16    electrodes comprises at least one opening.

17  
18    **23. (Original)** An apparatus according to claim 22, wherein at least one of said openings accepts  
19    said sample ions from at least one said ionization region.

20  
21    **24. (Original)** An apparatus according to claim 22, wherein at least one of said openings provides  
22    access through said ion guide for a laser beam to ionize a sample material.

23

1     25. **(Original)** An apparatus according to claim 21, wherein said ion guide focuses sample ions.

2  
3     26. **(Original)** An apparatus according to claim 21, wherein said ion guide traps sample ions  
4     therein for ion selection.

5  
6     27. **(Original)** An apparatus according to claim 21, wherein said ion guide traps sample ions  
7     therein for ion fragmentation.

8  
9     28. **(Original)** An apparatus according to claim 21, wherein each said conducting rod is  
10    positioned equidistant from a vertical axis.

11  
12    29. **(Currently Amended)** An apparatus according to claim 21, wherein said analysis region  
13    comprises a ~~time-of-flight~~ mass analyzer.

14  
15    30. **(Currently Amended)** An apparatus according to claim [[21]] 29, wherein said analysis  
16    ~~region comprises~~ mass analyzer is selected from the group consisting of an ion mobility  
17    analyzer, a time-of-flight mass analyzer, a quadrupole mass analyzer, a quadrupole ion trap mass  
18    analyzer, and a Fourier transform ion cyclotron resonance mass analyzer.

19  
20    31. – 33. **(Cancelled)**

21  
22    34. **(Original)** An apparatus according to claim 21, wherein said ion production region  
23    comprises an ion production means.

1 35. **(Currently Amended)** An apparatus according to claim ~~21~~ 34, wherein said ion  
2 production means is selected from the group consisting of electrospray ionization, atmospheric  
3 pressure chemical ionization, matrix assisted laser desorption/ionization, glow discharge,  
4 secondary ionization and fast atom bombardment.

5  
6 36 .- 40. **(Cancelled)**

7  
8 41. **(Original)** A method for analyzing chemical species in a mass spectrometer comprising an  
9 ion production means, at least one multipole ion guide, a vacuum system, and a mass analyzer,  
10 said method comprising the steps of: (a) producing ions in an ion production region; (b)  
11 introducing said ions into an ion guide, said ion guide comprising a plurality of conducting rods  
12 and at least one capping electrode; (c) applying a first potential to said conducting rods such that  
13 said ions move to a central axis of said ion guide; (d) transferring said ions from said ion guide  
14 into a mass analysis region; and (e) conducting mass analysis of said ions.

15  
16 42. **(Original)** A method according to claim 41, wherein said ions are produced from a plurality  
17 of said ion production means.

18  
19 43. **(Original)** A method according to claim 41, wherein gas phase chemical reactions occur  
20 within the ion guide.

21  
22 44. **(Original)** A method according to claim 41, wherein ion selection occurs within said ion  
23 guide.

1     45. **(Original)** A method according to claim 41, wherein ion fragmentation occurs within said  
2     ion guide.

3  
4     46. **(Original)** A method according to claim 41, wherein said ions are transferred from said ion  
5     guide into a second ion guide before entering said mass analysis region.

6  
7     47. **(Original)** A method according to claim 41, wherein said method further comprises the step  
8     of: (d) applying a second potential to said capping electrode to create an electric field to trap said  
9     ions within said ion guide.

10  
11    48. **(New)**     A method according to claim 41, wherein said capping electrode is an electrode  
12    rod.

13  
14    49. **(New)**     A method according to claim 41, wherein said capping electrode is an electrode  
15    plate.

16  
17    50. **(New)**     An apparatus according to claim 21, wherein said capping electrode is an  
18    electrode rod.

19  
20    51. **(New)**     An apparatus according to claim 21, wherein said capping electrode is an  
21    electrode plate.

22

1      52. (New)      An apparatus according to claim 1, wherein said capping electrode is an electrode  
2      rod.

3

4      53. (New)      An apparatus according to claim 1, wherein said capping electrode is an electrode  
5      plate.

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